

Ground Water Contamination

REMEDIATION AND STEWARDSHIP



Reactor vessels are buried in the ground at the East Trenches site as part of a passive collection and treatment system.

The Rocky Flats Environmental Technology Site (Site) has deployed a passive ground water remediation technology that will greatly reduce the cost of long-term environmental stewardship after Site cleanup activities are completed.

Project Description

Three ground water contamination plumes at Rocky Flats have been treated through the application of reactive barrier technology: the Mound Plume, the East Trenches Plume and the Solar Ponds Plume. The Site's ground water is being treated to protect the water quality of creeks, streams and lakes in the area. Reactive barrier technology has very low operating and maintenance costs compared to traditional "pump and treat" systems. In addition, its subsurface placement supports the potential use of the Site as open space or a wildlife refuge.

The Department of Energy Office of Science and Technology provided support to Rocky Flats for all three barrier installation projects.

Project Scope

- ♦ Remediation of ground water contamination plumes.
- ♦ Three barrier collection systems 250, 1,200 and 1,100 feet long.

Cleanup Method

A passive ground water collection and treatment system that uses iron filings to cleanse contaminants from the ground water has been deployed. Wood chips were added to the iron filings for the Solar Ponds Plume system to aid microbial destruction of the nitrate contaminant.

Contaminants of Concern

Mound Plume

- ♦ Carbon tetrachloride
- ♦ Tetrachloroethene
- ♦ Trichloroethene
- ♦ Vinyl chloride
- ♦ Small amounts of uranium and plutonium

East Trenches Plume

- ♦ Tetrachloroethene
- ♦ Trichloroethene
- ♦ Carbon tetrachloride

Solar Ponds Plume

- ♦ Nitrate
- ♦ Uranium

History

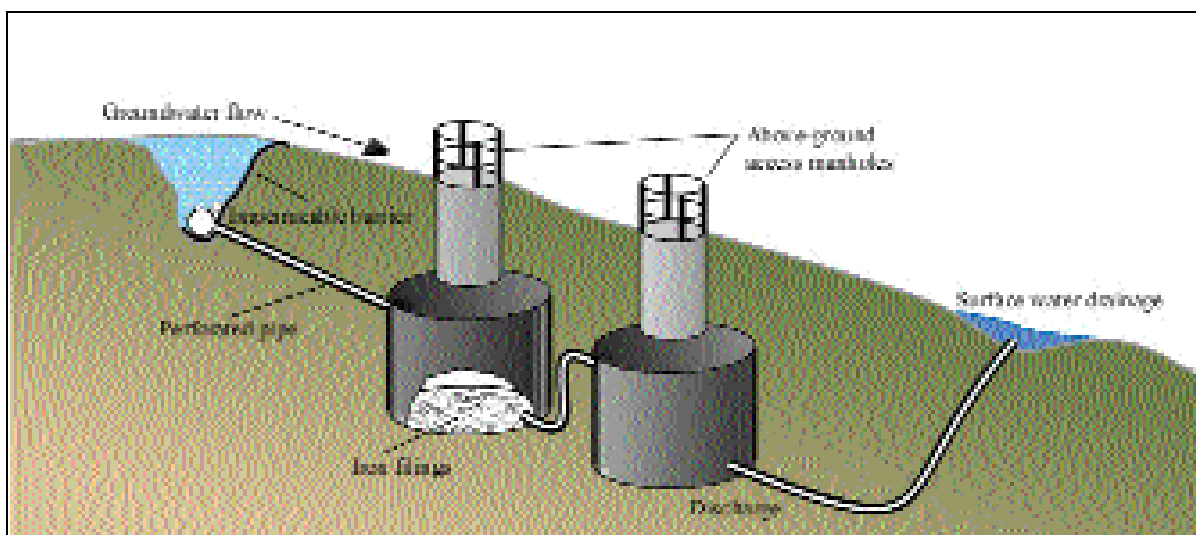
- ♦ The Mound Plume contamination originated at the Mound site, a former waste drum burial area used from



The ground above the Solar Ponds Plume barrier was reseeded after installation of the system.

1954 to 1958. In 1970, all of the drums were removed and, in April 1997, all of the chemically contaminated soils were removed. The barrier collection system was installed in FY1998.

- ♦ The East Trenches Plume contamination originated at Trenches 3 and 4, which were used in the 1960s for the disposal of chemically contaminated waste, debris, and contaminated sanitary sewage sludge. The trenches were remediated in 1996. The barrier collection system was installed in FY1999.
- ♦ The Solar Ponds Plume contamination originated at the Solar Ponds evaporation basins, which had been used to treat contaminated process waste water. The barrier collection system was installed in FY1999.
- ♦ Installation of the three systems by the end of FY1999 enabled the Site to achieve its cleanup agreement regulatory milestone of remediating ground water for the protection of surface water quality.



Passive-reactive barrier technology concept.



U.S. Department of Energy

Make It Safe. Clean It Up. Close It Down.



For further information about Rocky Flats

Contact DOE Communication at (303) 966-6088, or Kaiser-Hill Communication at (303) 966-2882, or toll free at (800) 269-0157 (press *82882# when you hear the automated attendant)

Also, additional information about Rocky Flats is available on the internet at: <http://www.rfets.gov>